Fadeyev, L. D.

AUTHOR: Fadeyev, L. D. 20-5-8/54

TITLE: On an Expression for the Trace of the Difference of Two Singular Differential Operators of the Sturm-Liouville's Type (O vyrazhenii dlya sleda raznosti dvukh singulyarnykh differantsial'nykh operatorov tipa Shturma-Liuvillya)

PERIODICAL: Doklady Akad.Nauk SSSR 1957,Vol.115,Nr.5, pp.878-881 (USSR)

ABSTRACT: The formula for the trace of the difference of two regular Sturm-Liouville's operators with a discrete spectrum found by Gel'fand and Levitan [Ref.1] is extended by the author in the simplest special case to operators with a continuous spectrum. The operators $L_i y = -y'' + q_i(x)y$, $y(0) = 0$, $i=1,2$, are considered.

Theorem: If 1) $\int_0^\infty x|q_i(x)|dx < \infty$, $i=1,2$, 2) $g(x)=q_1(x)-q_2(x)$ is continuous in the neighborhood of $x = 0$ and 3) $\int_0^\infty g(x)dx = 0$, then the trace of L_1-L_2 is finite and there holds the formula

$$Sp\,(L_1-L_2) = -\frac{1}{4}\,(q_1(o)-q_2(0)).$$

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20-5-8/54

On an Expression for the Trace of the Difference of Two Singular Differential Operators of the Sturm-Liouville's Type (Cont.)

ASSOCIATION: Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova)

PRESENTED: By V. I. Smirnov, Academician, March 1, 1957

SUBMITTED: February 20, 1957

AVAILABLE: Library of Congress

Card 2/2

LADYZHENSKAYA, O. A. and FADDEYEV, L. D.

"Perturbation Theory of a Continuous Spectrum."

paper submitted at International Congress Mathematicians, Edinburgh, 14 - 21 Aug 1958.

24 (5)
AUTHOR: Faddeyev, L. D. SOV/56-35-2-17/60

TITLE: On the Dispersion Relations in the Nonrelativistic Scattering Theory (O dispersionnykh sootnosheniyakh v nerelyativistskoy teorii rasseyaniya)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 2, pp 433-439 (USSR)

ABSTRACT: The present paper is a continuation of several papers: (Wong, Khuri, Van Kampen, Jost, and Pais, references 1 - 4, - investigation of dispersion conditions with S-matrix at complex energies - with special causality principle - according to the theory developed by Fredholm (Fredgol'm)). In the present paper the author suggests a relatively simple derivation of dispersion conditions, in which the problem is reduced to an investigation of the properties of Green's (Grin) function of the total Hamiltonian. Derivation is of a general character and is suited for any amplitudes of scattering on a potential. The author demonstrates this method on the basis of the problem of scattering on a fixed three-dimensional center (nonrelativistic ansatz).

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In this way it is possible to verify the results obtained by Wong and Khuri. In the last chapter of the paper the connection between the dispersion relations and the problems relating to the complete characteristic of the S-matrix, (by means of the K-matrix $S = (1 + iK)(1 - iK)^{-1}$) for $0 \leq E < \infty$ is discussed for different scattering equations. There are 14 references, 7 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: March 16, 1958

SOV/20-120-6-5/59

AUTHOR: Ladyzhenskaya, O.A. and Faddeyev,L.D.

TILE: On the Perturbation Theory of the Continuous Spectrum (K teorii vozmushcheniy nepreryvnogo spektra)

PERIODICAL: Doklady Akademii nauk SSSR,Vol 120,Nr 6,pp 1187-1190 (USSR),1958

ABSTRACT: Let K be an integral operator and let L_o denote the multiplication with the independent variable. The investigation of the spectrum of $L = L_o + \varepsilon K$ led Friedrichs [Ref 1,2] to the consideration of the integral equation

$$(1)\quad r(\lambda,\mu)=k(\lambda,\mu) + i\pi\varepsilon k(\lambda,\mu)r(\mu,\mu) + \varepsilon P\int \frac{k(\lambda,\sigma)r(\sigma,\mu)}{\mu-\sigma}$$

The solubility of (1) was proved by Friedrichs for small ε only. The authors prove that (1) is solvable for an arbitrary finite ε, and they present some properties of the spectrum of L without restriction to small ε.
There are 2 non-Soviet references, 1 of which is German, and 1 American.

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On the Perturbation Theory of the Continuous Spectrum SOV/20-120-6-5/59

ASSOCIATION: Leningradskoye otdeleniye matematicheskogo instituta imeni V.A. Steklova (Leningrad Section of the Mathematical Institut imeni V.A. Steklov of the Academy of Sciences of the USSR)

PRESENTED: February 17, 1958, by V.I. Smirnov, Academician

SUBMITTED: February 10, 1958

1. Perturbation theory 2. Spectroscopy

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AUTHOR: Faddeyev, L. D. SOV/20-121-1-16/55

TITLE: On the Connection Between S-Matrix and Potential for a One-Dimensional Schrödinger Operator (O svyazi S-matritsy i potentsiala dlya odnomernogo operatora Shredingera)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 121, Nr 1, pp. 63-66 (USSR)

ABSTRACT: The author investigates the one-dimensional Schrödinger equation $Ly = -d^2/dx^2\, y + q(x)y = k^2 y$

on the whole axis $-\infty < x < \infty$, where the condition $\int_{-\infty}^{\infty} (1 + |x|)\,|q(x)|\,dx < \infty$ is assumed to be satisfied.

If this condition is satisfied the solution $f_1(x,k)$ (for which $\lim_{x\to\infty} e^{-ikx} f_1(x,k) = 1$

Card 1/4 holds) and $f_2(x,k)$ (for which $\lim_{x\to -\infty} e^{ikx} f_2(x,k) = 1$ holds)

On the Connection Between S-Matrix and Potential for a One-Dimensional Schrödinger Operator

exist for every k of the upper semiplane. Im k $\geq$ 0. According to B. Ya. Levin a representation

$$f_1(x,k) = e^{ikx} + \int_x^{\infty} A_1(x,y)e^{iky}\,dy \text{ exists, whereby}$$

$$\int_a^{\infty} dx \int_x^{\infty} dy \left| A_1(x,y) \right|^2 \leqslant C_a, \quad a > -\infty. \text{ Furthermore is valid}$$

$$f_2(x,k) = e^{-ikx} + \int_{-\infty}^{x} A_2(x,y)e^{-iky}\,dy \quad \int_{-\infty}^{b} dx \int_{-\infty}^{x} dy \left| A_2(x,y) \right|^2 \leqslant C_b,$$

$b < \infty$. In the case of real $k \neq 0$ the solutions $f_1(x,k)$ and $f_1(x,-k) = f_1(x,k)$ or $f_2(x,k)$ and $f_2(x,-k) = f_2(x,k)$ form a complete system thus that every solution can be represented

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On the Connection Between S-Matrix and Potential for a One-Dimensional Schrödinger Operator

as their linear combination.

$f_1(x,k) = c_{11}(k)\, f_1(x,k) + c_{12}(k)\, f_1(x,-k)$

$f_1(x,k) = c_{22}(k)\, f_2(x,k) + c_{12}(k)\, f_2(x,-k)$ holds in particular. A lemma on the determination of these coefficients and other lemma are given. The equations derived in this paper allow to ascertain the potential by means of the S-matrix. The author wants to find out which properties the elements of the S-matrix must exhibit that the potential satisfies the condition

$$\int_{-\infty}^{\infty} (1 + |x|)q(x)\, dx < \infty .$$

The inverse problem can be solved by means of a lemma given in this paper. The result is formulated as a theorem. There are 6 references, 5 of which are Soviet.

507/20-121-1-16/55

On the Connection Between S-Matrix and Potential for a One-Dimensional Schrödinger Operator

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

PRESENTED: March 3, 1958, by V. I. Smirnov, Member, Academy of Sciences, USSR (this date is obviously a printing error in the Soviet paper)

SUBMITTED: March 12, 1958

1. Operators (Mathematics) 2. Mathematics

FADDEYEV, L. D. Cand Phys-Math Sci -- (diss) " Properties of ~~the~~ S-~~shaped~~ matrix on ~~stamper~~ for ~~[illegible]~~ on a local potential." Len, 1959. 8 pp (Len Order of Lenin State Univ im A. A. Zhdanov), 150 copies (KL, 45-59, 143)

16(1),16(2),24(5)

AUTHOR: Faddeyev, L.D.

SOV/42-14-4-3/27

TITLE: The Reversion Problem of the Quantum Theory of Scattering

PERIODICAL: Uspekhi matematicheskikh nauk, 1959, Vol 14,Nr 4,pp 57-120 (USSR)

ABSTRACT: This is a connected detailed representation of the results obtained during the last 12 years by the investigation of the reversion problem of the quantum theory which is formulated by the author as follows: Under the assumption that the potential $q(x)$ for $x \to \infty$ decreases sufficiently fast let the solution of the equation

(0.1) $$L\psi = -\frac{d^2}{dx^2}\psi(x,k)+q(x)\psi(x,k) = k^2\psi(x,k)$$

(0.2) $$\psi(0,k) = 0$$

have the asymptotic

(0.3) $$\psi(x,k) \approx C(k)\sin(kx+\eta(k)).$$

How far is $q(x)$ determined by $\eta(k)$? How are the properties of $q(x)$ and $\eta(k)$ combined with each other?
By a skilful combination of the methods of I.M.Gel'fand and B.M.Levitan on the one hand, and by V.A.Marchenko and M.G.Kreyn

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at the other hand, the author obtains a clear theory. The most difficult mathematical proofs are replaced by physically obvious considerations. The paper contains 15 paragraphs, the first 13 of which are devoted to the case (0.1)-(0.3), while the last two paragraphs treat the case

$$-\frac{d^2}{dx^2}\psi(x,k) = \left(\frac{l(l+1)}{x^2} + q(x)\right)\psi(x,k) = k^2\psi(x,k)$$

with $l > 0$.

Beside of the above Soviet scientists the author mentions: O.A.Ladyzhenskaya, Z.S.Agranovich, A.Ya.Povzner, B.Ya. Levin, L.A.Chudov, M.G.Neygauz V.V.Stashevskaya, V.Ya. Volk, and A.Sh. Blokh.

There are 66 references, 25 of which are Soviet, 21 American, 5 German, 3 Danish, 9 Italian, 2 Swiss, and 1 Norwegian.

SUBMITTED: February 12, 1959

S/056/60/039/005/041/051
B006/B077

24.4500

AUTHOR: Faddeyev, L. D.

TITLE: Scattering Theory for a Three-particle System

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 5(11), pp. 1459 - 1467

TEXT: The equations presently obtained in the scattering theory for the Hamiltonian eigenfunctions of the system in the configuration space show a number of shortcomings such as the Lippman-Schwinger integral equations. The author proposes equations for the eigenfunctions which do not have these shortcomings. It can be shown that the eigenfunctions of the Hamiltonian for a three-particle system with pair interaction can be easily represented as the sum of three terms. There is a linked set of equations for each of these terms. All equations are inhomogeneous; only for energies corresponding to a bound state of the system exists a solution in form of a homogeneous equation. In order to determine the kernels of the integral equation only the pair problems are to be solved. These kernels are found to be generalizations of the so-called

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Scattering Theory for a Three-particle System S/056/60/039/005/041/051
B006/B077

T-matrix and are easily to be determined for various limiting cases, if no potential exists. The separation of the wave function into three parts has been done previously (in three-body problems) very successfully (Refs. 7,8). In the first part of this study the equations are derived formally for a system consisting of three nonrelativistic spin-zero particles with different mass. Two of these particles are assumed to be in a bound state. The second part of this work deals with the transformation of the obtained equations into momentum representation and the meaning of the model of paired particles (nuclei) is investigated. The last part gives the discussions of the results. It is shown that in opposition to the Lippman-Schwinger type equations these equations have a unique solution. If the limit is crossed towards vanishing interaction range, the well known equations by G. V. Skornyakov and K. A. Ter-Martirosyan are obtained. The author thanks F. A. Berezin, V. N. Gribov, S. V. Maleyev, and L. V. Prokhorov for discussions. There are 10 references: 2 Soviet and 8 US.

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Scattering Theory for a Three-particle System S/056/60/039/005/041/051
B006/B077

ASSOCIATION: Matematicheskiy institut Akademii nauk SSSR (Mathematics Institute of the Academy of Sciences USSR)

SUBMITTED: July 30, 1960

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S/020/60/132/01/02/064

16.3400 16.4600

AUTHORS: Buslayev, V.S., and Faddeyev, L.D.

TITLE: Formulas for Traces in the Case of Sturm - Liouville's Differential Singular Operator

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 132, No. 1, pp. 13-16

TEXT: The authors consider the operator $Ly = - y'' + q(x)y$, $y(0) = 0$, where it is assumed that $\int_0^\infty x|q(x)|\,dx < \infty$. The spectrum of L consists of the continuable part $[0,\infty]$ and finitely many negative values $\lambda_l = - \varkappa_l^2$ ($\varkappa_l > 0$; $l = 1,2,..,m$). Let

$$M(s) = 1 + \int_0^\infty e^{isx} q(x) \varphi(x,s)dx = A(s)\, e^{i\eta(s)}$$

$(s = \sigma + i\tau, \quad 0 \leq \tau < \infty, \quad -\infty < \sigma < \infty)$

(for the notations see (Ref. 2)). Let R_λ be the resolvent of L ; the upper index 0 relates to the case $q(x) \equiv 0$. Theorem 1 : For $\arg \lambda \neq 0$ and $\lambda \neq \lambda_l$ ($l = 1,2,\ldots,m$) it holds

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Formulas for Traces in the Case of Sturm - Liouville's Differential Singular Operator

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$Sp(R_\lambda - R_\lambda^0) = -\frac{d}{d\lambda} \ln M(\sqrt{\lambda})$; $0 \leq \arg \sqrt{\lambda} \leq \pi$.

Conclusion : $M(\sqrt{\lambda}) = \det (E + q R_\lambda^0)$.

For $q(x) \in L[0,\infty]$ it holds

$$(\alpha) \qquad Sp(R_\lambda - R_\lambda^0) = -\int_{-\infty}^{\infty} \xi(t) d \frac{1}{t - \lambda} ,$$

where

$$\xi(t) = \begin{cases} \frac{1}{\pi} \eta(\sqrt{t}) & t > 0 \\ -\int_{-\infty}^{t} \sum_1 \delta(z - \lambda_1) dz , & t < 0 . \end{cases}$$

Let for $x \geq 0$ exist the continuous $q^{(n)}(x)$ $(n \geq 1)$; where $\lim_{x \to \infty} q^{(1)}(x) = 0$ for $l = 0, \ldots, n$. Let further

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Formulas for Traces in the Case of Sturm - Liouville's Differential Singular Operator

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$$V_1 = \lim_{\alpha\to\infty} V_1(\alpha) \; ; \; V_0(\alpha) = -\int_0^\alpha q(z)dz \; ,$$

$$V_1(\alpha) = q^{(1-1)}(0) + \sum_{m=0}^{1-1} C_{1-1}^m \int_0^\alpha dz \; V_m(z) q^{(1-m-1)}(z)$$

$$Q_p = V_{p-1} + \sum_{j=1}^{p-1} \frac{j}{p} V_{p-j-1} Q_j$$

Theorem 2 : Under the given assumptions it holds

$$(-1)\sum_{l=1}^{m} \varkappa_l^{2\mu} + \frac{2\mu}{\pi}\int_0^\infty k^{2\mu-1}\left[\eta(k) - \sum_{l=0}^{\mu-1} \frac{(-1)^{l+1}}{(2k)^{2l+1}} Q_{2l+1}\right] dk =$$

$$= (-1)^\mu \frac{\mu}{2^{2\mu}} Q_{2\mu} \quad - \quad (\mu = 1,2,\ldots \leqslant \tfrac{n}{2}) \; ;$$

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Formulas for Traces in the Case of Sturm - Liouville's Differential Singular Operator

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$$(-1)^{\mu} \sum_{l=1}^{m} \varkappa_l^{2\mu+1} - \frac{2\mu+1}{\pi} \int_0^{\infty} k^{2\mu} \left[\ln A(k) - \sum_{l=1}^{\mu} \frac{(-1)^{l+1}}{(2k)^{2l}} Q_{2l} \right] dk =$$

$$= (-1)^{\mu} \frac{2\mu+1}{2^{2\mu+2}} Q_{2\mu+1} \qquad \left(\mu = 0, \ldots, \leq \frac{n-1}{2} \right) .$$

The authors mention I.M. Gel'fand, B.M. Levitan, L.A. Dikiy and I.M. Lifshits.
The authors thank M.G. Kreyn and M.Sh. Birman for discussions.
There are 7 references : 6 Soviet and 1 American.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet imeni A.A. Zhdanova (Leningrad State University imeni A.A. Zhdanov)
PRESENTED: January 3, 1960, by V.I. Smirnov, Academician
SUBMITTED: December 17, 1959

4

Card 4/4

S/056/61/041/006/029/054
B146/B102

AUTHORS: Minlos, R. A., Faddeyev, L. D.

TITLE: The three-particle problem with point interaction

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 41, no. 6, 1961, 1850-1851

TEXT: An integral equation derived by K. A. Ter-Martirosyan and G. V. Skornyakov (Ref. 1: ZhETF, 31, 775, 1956) for the wave function of a three-particle system with point interaction is considered on the basis of scalar and homogeneous particles. Besides a relation following from the asymptotic behavior and from the orthogonality of the solutions, this equation has solutions corresponding to an infinite set of bound states. The proof furnished for this is only applicable to spherosymmetric solutions. The work is based on the Ter-Martirosyan - Skornyakov model improved by G. S. Danilov (Ref. 2: ZhETF, 40, 498, 1961); a more general treatment in a mathematical paper by the authors (Ref. 4: R. A. Minlos, L. D. Faddeyev, DAN SSSR, 141, 6, 1961) is referred to. There are 4 Soviet references.

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The three-particle problem with ... S/056/61/041/006/029/054
B146/B102

ASSOCIATION: Moskovskiy gosudarstvennyy universitet (Moscow State University)

SUBMITTED: June 16, 1961

Card 2/2

21959
S/020/61/137/005/002/026
C111/C222

24.4500

AUTHORS: Berezin, F.A., and Faddeyev, L.D.

TITLE: A remark on the Schrödinger equation with a singular potential

PERIODICAL: Akademiya nauk SSSR. Doklady, vol.137,no.5,1961, 1011-1014

TEXT: The solution of the equation

$$-\Delta\psi + \varepsilon\delta(x)\psi = E\psi, \qquad (1)$$

where $\delta(x)$ is the Dirac δ-function, contains certain difficulties since

$$H = -\Delta + \varepsilon\delta(x) \qquad (2)$$

is no operator in the Hilbert space.
Instead of (1) the authors consider

$$-\Delta\psi + \varepsilon(N)\int u_N(x,y)\psi(y)d^3y = E\psi, \qquad (N)$$

where u_N has the property

$$\lim_{N\to\infty} u_N(x,y) = \delta(x)\,\delta(y). \qquad (3)$$

For the solution of (N) the authors use the Fourier transformation and obtain

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A remark on the Schrödinger equation... 3/020/61/137/005/002/026
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$$p^2\tilde{\psi} + \frac{(N)}{8\pi^3}\int \tilde{u}_N(p,q)\tilde{\psi}(q)d^3q = E\tilde{\psi},$$

$$\tilde{u}_N(p,q) = \int e^{i(qy-px)}u_N(x,y)d^3xd^3y, \qquad (\tilde{N})$$

where

$$\lim_{N\to\infty} \tilde{u}_N(p,q) = 1. \qquad (3')$$

Now u_N is chosen so that

$$\tilde{u}_N(p,q) = \chi_N(p)\,\chi_N(q); \qquad \chi_N(p) = \begin{cases} 1 \text{ for } p^2 < N^2, \\ 0 \text{ for } p^2 > N^2. \end{cases} \qquad (4)$$

Then the eigenfunctions belonging to the continuous spectrum read

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A remark on the Schrödinger equation...

$$\tilde{\psi}_N^+(p, s) = \delta(p-s) - \frac{\varepsilon'(N)}{1+\varepsilon'(N)\int \frac{\chi_N^2(p)\,d^3p}{p^2-s^2-i0}} \frac{\chi_N(p)\,\chi_N(s)}{p^2-s^2-i0}. \qquad (5)$$

$$s^2 = E, \quad \varepsilon' = \frac{\varepsilon(N)}{8\pi^3}.$$

Furthermore:

$$\int \frac{\chi_N^2(p)\,d^3p}{p^2-s^2-i0} = 4\pi\int_0^N \frac{p^2dp}{p^2-s^2-i0} = 4\pi\left(N + \frac{|s|}{2}\left(-\pi i + \ln\frac{N-|s|}{N+|s|}\right)\right). \qquad (6)$$

Choosing $\varepsilon'(N) = \frac{\alpha}{1-2\pi\alpha N}$, α=const, then the limit value of $\tilde{\psi}_N^+$ for $N\to\infty$ equals

$$\tilde{\psi}^+ = \delta(p-s) - \frac{\alpha}{1-2\pi^2 i\alpha|s|}\frac{1}{p^2-s^2-i0}. \qquad (7)$$

At the other hand, the authors consider the Fourier transform of (2)

$$\tilde{H}\psi = p^2\psi + \varepsilon'\int \psi\, d^3p. \qquad (8)$$

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C111/C222

A remark on the Schrödinger equation...

Let D_L be the set of functions for which

$$\int p^4 |\psi|^2 d^3p < \infty, \quad \int \psi d^3p = 0.$$

Let L be the operator of the multiplication with p^2 defined in D_L. L is a closed symmetrical operator with the defect index (1,1). All extensions of L are given by

$$H_\alpha \psi = p^2\psi + \lim_{N\to\infty} \frac{\alpha}{1-4\pi\alpha N} \int \chi_N(p)\psi(p)d^3p, \qquad (9)$$

where $\psi(p)$ has the properties

$$\int \chi_N(p)\psi(p)d^3p = c(1-4\pi\alpha N)+o(1), \quad \int |H_\alpha \psi|^2 d^3p < \infty \,|. \qquad (9')$$

It is stated that the eigenfunctions of the continuous spectrum H_α are given by (7). Using these results then the scattering operator and the results given in (Ref.1: Ya.B.Zel'dovich, Zh E T F 38, no.3, 819(1960)) can be obtained.

In the x-representation it holds

$$H_\alpha f = -\Delta f + \alpha \lim_{N\to\infty} \frac{1}{1-4\pi\alpha N} \frac{\sin N|x|}{|x|} \int \frac{\sin N|y|}{|y|} f(y)d^3y. \qquad (12)$$

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A remark on the Schrödinger equation...

The region of definition of H_α consists of functions satisfying the condition

$$\int \frac{\sin N|x|}{|x|} f(x)d^3x = o(1-4\pi\epsilon N)+o(1), \quad \int |H_\alpha f|^2 d^3x < \infty . \qquad (12')$$

It is stated that the mathematical content of the investigation of the equation (1) by physicists (e.g. Ref.1) consists in replacing (2) by the operator (12),(12') being an extension of the operator $-\Delta$ the region of definition of which consists of those f(x) for which f(0)=0.

There are 2 Soviet-bloc references.

PRESENTED: November 25, 1960, by I.G.Petrovskiy, Academician

SUBMITTED: November 24, 1960

Card 5/5

24037
S/020/61/138/003/009/017
B104/B205

24.4400

AUTHOR: Faddeyev, L. D.

TITLE: Construction of the resolvent of the Schroedinger operator of a system of three particles with pair interaction

PERIODICAL: Doklady Akademii nauk SSSR, v. 138, no. 3, 1961, 565 - 567

TEXT: The energy operator for a system of N particles having the masses $m_1, \ldots, m_N$, which undergo pair interaction, has the form

$$H_N = -\sum_{i=1}^{N} \frac{1}{2m_i} \nabla_i^2 + \sum_{i<j}^{N} v_{ij}(r_i - r_j). \qquad (1)$$

Only the operator H_2 has been studied so far. In this connection, the author refers to papers by A. Ya. Povzner (Matem. sborn., 32, 1, (1953); DAN, 104, no. 3, 360 (1955)), T. Kato (Comm. Pure and Appl. Math., 12, 403 (1959)), and T. Ikebe (Arch. Rat. Mech. Anal., 5, no. 1, 1(1960)). In a previous paper (ZhETF, 39, no. 11, 1569 (1960)), the author suggested a new integral equation for studying a system of three particles. In the present paper, he reports the results of a study on the behavior of the

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resolvent of the operator H_3, which he obtained from this equation. Instead of H_3, the operator H is studied, which was obtained from H_3 by proceeding to pulse representation, i. e., after a Fourier transformation, and by separating the operator from the kinetic energy of the center of mass. Here, it is assumed that $m_1 = m_2 = m_3$. The three vectors assumed, p_1, p_2, and p_3, are given by

$$p_1 + p_2 + p_3 = 0 \qquad (2).$$

Each pair of these vectors traverses the six-dimensional space E_6 independently. The operator H is given in the $\mathfrak{L}_2(E_6)$ space, and has the form

$$H = H_0 + V = H_0 + V_{23} + V_{31} + V_{12} \qquad (3),$$

where H_0 is an operator acting on the function

$$p_1^2 + (p_1p_2) + p_2^2 = p_2^2 + (p_2p_3) + p_3^2 = p_3^2 + (p_3p_1) + p_1^2 \qquad (4).$$

The operator V_{23} has the kernel

$$V_{23}(p,p') = v_{23}(p_2 - p_2')\,\delta(p_1 - p_1') \qquad (5).$$

Construction of the resolvent...

The operators V_{31} and V_{12} are defined analogously. If $R(z) = (H - zI)^{-1}$ and $R_0(z) = (H_0 - zI)^{-1}$ are the resolvents of the operators H and H_0, one has

$$R(z) = R_0(z) - R_0(z) VR(z). \quad (7)$$

If R(z) is sought in the form

$$R(z) = R_0(z) - R_0(z) T(z) R_0(z), \quad (8)$$

then T(z) is given by

$$T(z) = V - VR_0(z) T(z) \quad (9).$$

Eqs. (7) and (9) are particularly valuable for studying the operator H_2. The operator equation

$$\mathfrak{T}(z) = \begin{pmatrix} V_{33} & 0 & 0 \\ 0 & V_{31} & 0 \\ 0 & 0 & V_{13} \end{pmatrix} - \begin{pmatrix} V_{33} & V_{32} & V_{30} \\ V_{31} & V_{21} & V_{21} \\ V_{13} & V_{12} & V_{11} \end{pmatrix} R_0(z)\mathfrak{T}(z). \quad (10)$$

is formulated in accordance with (9). $T_{23}(z)$ is supposed to be a solution to the equation

$$T_{23}(z) = V_{23} - V_{23}R_0(z)T_{23}(z) \quad (11),$$

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which also holds for $T_{31}(z)$ and $T_{12}(z)$. Thus, the following relation is obtained from Eq. (10):

$$\mathfrak{T}(z) = \begin{pmatrix} T_{23}(z) & 0 & 0 \\ 0 & T_{31}(z) & 0 \\ 0 & 0 & T_{12}(z) \end{pmatrix} - \begin{pmatrix} 0 & T_{23}(z) & T_{23}(z) \\ T_{31}(z) & 0 & T_{31}(z) \\ T_{12}(z) & T_{12}(z) & 0 \end{pmatrix} R_0(z)\mathfrak{T}(z) =$$
$$= \mathfrak{T}_0(z) - \mathfrak{A}(z)\mathfrak{T}(z). \qquad (12)$$

It is easily seen that $T_{23}(p,p') = t_{23}(-p_2 - \frac{1}{2}p, -p_2' - \frac{1}{2}p_1,$

$$z - \tfrac{3}{4}p_1^2)\ \delta\ (p_1 - p_1') \qquad (13),$$

where t_{23} is the solution to the integral equation

$$t(k,k',z) = v(k-k') - \int v(k-k'')\ (k''^2 - z)^{-1} t(k'',k',z)dk'' \qquad (14).$$

In order to find out whether there are no δ-singularities in the free term, the matrix $\mathfrak{M}(z) = \mathfrak{T}(z) - \mathfrak{T}_0(z)$ is studied, for which the following relations are valid:

Construction of the resolvent...

$$\mathfrak{W}(z) = \mathfrak{W}_0(z) - \mathfrak{A}(z)\,\mathfrak{W}(z), \qquad (15)$$

where

$$\mathfrak{W}_0(z) = \begin{pmatrix} 0 & T_{12}(z)\,R_0(z)\,T_{21}(z) & T_{13}(z)\,R_0(z)\,T_{31}(z) \\ T_{21}(z)\,R_0(z)\,T_{12}(z) & 0 & T_{23}(z)\,R_0(z)\,T_{31}(z) \\ T_{31}(z)\,R_0(z)\,T_{12}(z) & T_{32}(z)\,R_0(z)\,T_{21}(z) & 0 \end{pmatrix}. \qquad (16)$$

Using Eq. (15) it is possible to investigate the behavior of R(z) for Im z $\neq$ 0. The following theorem has been established: If the potential V_{ij} satisfies the condition

$$|v_{ij}(q)| \leqslant C(1+|q|)^{-1-\varepsilon_0}, \quad \varepsilon_0 > 0, \quad i, j = 1, 2, 3. \qquad (6)$$

the resolvent of the operator H will acquire the form

$$R(z) = R_0(z) + \sum_{i<j}^{3}(R_{ij}(z) - R_0(z)) + R_0(z)\,W(z)\,R_0(z) \qquad (22).$$

Here, $R_0(z)$ and $R_{ij}(z)$ are the resolvents of the operators H_0 ..... H_{ij}, where $H_{ij} = H_0 + V_{ij}$ (i, j = 1, 2, 3); W(z) is an integral operator,

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Construction of the resolvent...

the kernel of which is given by

$$|W(p,p')| \leqslant C \sum_{ij=1}^{2} M_{ij}(p,p',\varepsilon) \qquad (23),$$

where $\varepsilon < \varepsilon_0$. S. M. Nikol'skiy is mentioned. There are 6 references: 4 Soviet-bloc and 2 non-Soviet-bloc.

ASSOCIATION: Leningradskoye otdeleniye Matematicheskogo instituta im. V. A. Steklova Akademii nauk SSSR (Leningrad Department of the Institute of Mathematics imeni V. A. Steklov of the Academy of Sciences USSR)

PRESENTED: January 30, 1961, by V. I. Smirnov, Academician

SUBMITTED: January 19, 1961

Card 6/6

MINIOS, R.A.; FADDEYEV, L.D.

Point interaction for a system of three particles in quantum mechanics. Dokl. AN SSSR 141 no.6:1335-1338 D '61. (MIRA 14:12)

1. Moskvoskiy gosudarstvennyy universitet im. M.V.Lomonosova. Predstavleno akademikom I.G.Petrovskim.
(Operators (Mathematics)) (Quantum theory)

FADDEYEV, L. D.

"Construction of the resolvent of the energy operator for a three particle system and the scattering peoblem"

report submitted at the Intl Conf of Mathematics, Stockholm, Sweden, 15-22 Aug 62

FADDEYEV, L.D.

Structure of the resolvent of Schrödinger's operator for a system of three particles, and the scattering problem. Dokl.AN SSSR 145 no.2:301-304 Jl '62. (MIRA 15:7)

1. Leningradskoye otdeleniye Matematicheskogo instituta imeni V.A.Steklova AN SSSR. Predstavleno akademikom V.I.Smirnovym.
(Problem of three bodies) (Operators (Mathematics))

FADDEYEV, L.D.; PETROVSKIY, I.G., akademik, otv. red.; NIKOL'SKIY, S.M., prof., zam. otv. red.; TRAVIN, N.V., red. izd-va; SMIRNOVA, A.V., tekhn. red.

[Mathematical problems in the quantum theory of scattering for a system of three particles]. Matematicheskiy voprosy kvantovoi teorii rasseianiia dlia sistemy trekh chastits. Moskva, Izd-vo Akad. nauk SSSR, 1963. 119 p. (Akademiia nauk SSSR. Matematicheskii institut. Trudy, no.69). (MIRA 16:4)

(Quantum theory) (Scattering(Physics))

FADDEYEV, L.D.

Separation of self-action and scattering effects under the perturbation theory. Dokl. AN SSSR 152 no.3:573-576 S '63. (MIRA 16:12)

1. Leningradskoye otdeleniye Matematicheskogo instituta im. V.A. Steklova AN SSSR. Predstavleno akademikom V.I.Smirnovym.

L 45909-65 EWT(d)/T IJP(c)

ACCESSION NR AM4043734 BOOK EXPLOITATION S/ 30 B+1

Vilenkin, N. YA.; Gorin, YE. A.; Kostyuchenko, A. G.; Krasnosel'skiy, M. A.; Kreyn, S. G.; Maslov, V. P.; Mityagin, B. S.; Petunin, YU. I.; Rutitskiy, YA. B.; Sobolev, V. I.; Stetsenko, V. YA.; Faddeyev, L. D.; Tsitlandze, E. S.

Functional analysis (Funktsional'nyy analiz), Moscow, Izd-vo "Nauka", 1964, 424 p. biblio., index. Errata slip inserted. 17,500 copies printed. Series note: Spravochnaya matematicheskaya biblioteka.

TOPIC TAGS: functional analysis, mathematics, operator equation, quantum mechanics, Hilbert space, Banach space, linear differential equation

PURPOSE AND COVERAGE: This issue in a series of Handbooks of the Mathematical Library contains much material grouped basically around the theory of operators and operator equations. It presents the basic concepts and methods of functional analysis, theory of operators in Hilbert space and in conical space, the theory of nonlinear operator equations, the theory of standard rings applied to equations in partial derivatives, to integral equations. A separate chapter is devoted to the basic operator of quantum mechanics. Citing of the theory of generalized functions takes up a large part of the book. The book explains mathematical facts; theorems and formulas, as a rule, are given

Card 1/2

L 45809-65
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without proofs. Main attention is given to concepts without excessive detail. The book is intended for mathematicians, mechanical engineers, and physicists. It contains much of value for students and graduate students.

TABLE OF CONTENTS [abridged]:

SUBMITTED: 06Feb64 SUB CODE: MA

NO REF SOV: 038 OTHER: 012

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L 63360-65 EWT(d) IJP(c)

ACCESSION NR: AT5018144 UR/2517/64/073/000/0292/0313

AUTHOR: Faddeyev, L. D.

TITLE: On Friedrichs' model in the theory of perturbations of the continuous spectrum

SOURCE: AN SSSR. Matematicheskiy institut. Trudy, v. 73, 1964. Krayevyye zadachi matematicheskoy fiziki (Boundary value problems in mathematical physics); sbornik rabot, no. 2, 292-313

TOPIC TAGS: continuous spectrum, quantum theory, Schroedinger equation, perturbation theory, integral operator, integral equation

ABSTRACT: Complete proofs are given for prior formulations made by the author and O. A. Ladyzhenskaya, who extended the work of Friedrichs and Povzner on perturbations of a continuous spectrum by showing that one may remove the limitations on the smallness of perturbations in Friedrichs' theory by assuming that the kernel of the operator is a completely continuous operator and that the Hölder index of the kernel is greater than $\frac{1}{2}$. The method used, however, differs somewhat from that used previously and was developed in work on the scattering problem for a system

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ACCESSION NR: AT5018144

of three particles. The major analytic part of the work is devoted to the study of the integral equation: $t(x,y,\lambda)=v(x,y)-\int v(x,z)t(z,y,\lambda)(z-\lambda)^{-1}dz$

for a t-matrix-kernel. Validity theorems are proved for convergence estimates for the $T(\lambda)$ operator. A theorem for expansion with the operator is stated and proved. Orig. art. has: 175 formulas

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: GP, MA

NO REF SOV: 005 OTHER: 006

Card 2/2

FADDEYEV, L.D.

Properties of the S-matrix of a one-dimensional Schrodinger equation. Trudy Mat. Inst. 73:314-336 '64.

Friedrichs's model in the theory of perturbations of a continuous spectrum. Ibid.:292-313 (MIRA 18:3)

L 13486-65 EWT(1) LJP(c)/SSD/AS(mp)-2/AFWL/ESD(gs)/ESD(t)
ACCESSION NR: AP4047899 S/0056/64/047/004/1315/1321

AUTHORS: Popov, V. N.; Faddeyev, L. D.

TITLE: Concerning one approach in the Bose gas theory at low temperatures

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 47, no. 4, 1964, 1315-1321

TOPIC TAGS: Bose Einstein gas, low temperature research, perturbation theory, annihilation, Green function, phonon

ABSTRACT: An approach is suggested for the theory of the Bose gas, believed to be more rigorous and simpler conceptually than the earlier treatments. The method is based on the premise that the existence of a condensate at low temperatures precludes the application of ordinary perturbation theory in which the unperturbed Hamiltonian is that of noninteracting particles, since in the ordinary theory

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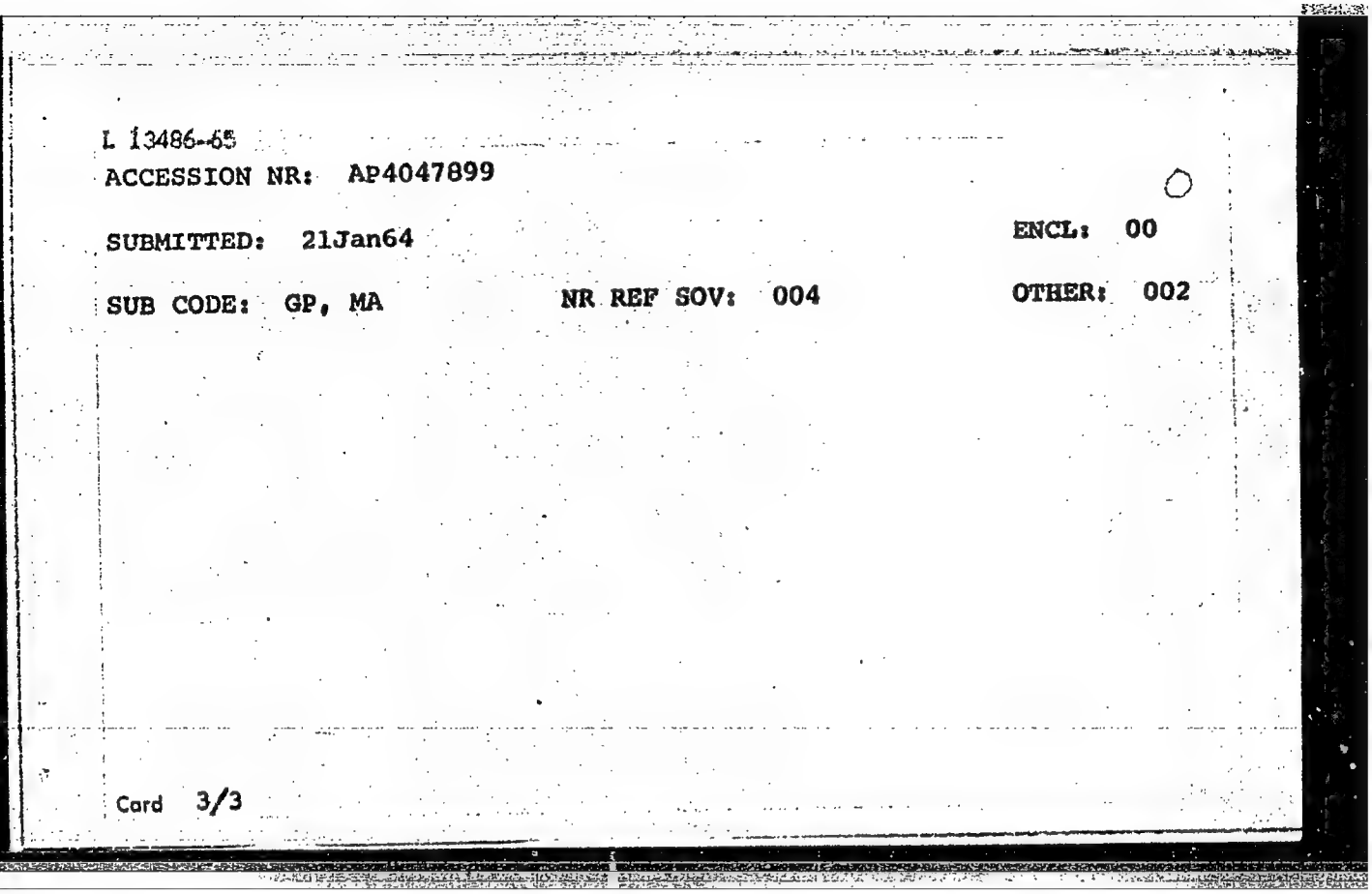
L 13486-65
ACCESSION NR: AP4047899

the Green's function acquires nonphysical singularities when the temperature is reduced at fixed density. Consequently the authors start with a different unperturbed Hamiltonian which is made quadratic in the annihilation and creation operators by means of a specific canonical transformation. This perturbation theory is developed in diagram form, and the consequences of the resultant formalism is then discussed. In particular, it is shown how the phase transition associated with the appearance of the condensate shows up as the point where the canonical transformation degenerates into the identity transformation and the specially developed perturbation theory goes over into the usual one. The one-particle excitation spectrum is shown to have a phonon character below the transition temperature. Orig. art. has: 3 figures and 5 formulas.

ASSOCIATION: Leningradskoye otdeleniye Matematicheskogo instituta im. V. A. Steklova (Leningrad Division, Mathematics Institute, Academy of Sciences, SSSR)

Card 2/3



L 13486-65
ACCESSION NR: AP4047899

SUBMITTED: 21Jan64 ENCL: 00

SUB CODE: GP, MA NR REF SOV: 004 OTHER: 002

Card 3/3

FADDEYEV, L.D.

Growing solutions to the Schrödinger equation. Dokl. AN SSSR 165 no.3:514-517 N '65. (MIRA 18:11)

1. Leningradskoye otdeleniye Matematicheskogo instituta im. V.A. Steklova AN SSSR. Submitted April 5, 1965.

FADDEYEV, M., inzh.

Modeling regulating structures and cuts on aerodynamic pressure models. Rech. transp. 20 no.12:44-45 D '61. (MIRA 14:12)

(Rivers—Regulation)
(Aerodynamic models)

VERKHUNOV, P.M., kand.sel'skokhoz.nauk; FADDEYEV, M.G., mladshiy nauchnyy sotrudnik

Estimating the remnants of wood during the inspection of cutting places in heavily wooded areas of Siberia. Trudy VSNIPILesdrev no.5:11-14 '62. (MIRA 16:5)

1. Laboratoriya lesosyr'yevykh resursov Vostochno-Sibirskogo nauchno-issledovatel'skogo i proyektnogo instituta lesnoy i derevoobrabatyvayushchey promyshlennosti (for Verkhunov).
(Siberia--Forest management)

FADDEYEV, M.P.

Problems of similitude related to aerodynamic stream bed models.
Izv.Sib.otd.AN SSSR no.9:44-51 '60. (MIRA 13:11)

1. Novosibirskiy institut inzhenerov vodnogo transporta.
(Aerodynamic models) (Hydraulic models)
(Rivers)

MARTYNOV, M.I., general-mayor aviatsii, voyennyy letchik pervogo klassa; FADDEYEV, N.I., polkovnik, voyennyy shturman pervogo klassa

Isn't it about time we changed the procedure in flight preparation. Vest.Vozd.Fl. no.1:22-26 Ja '60. (MIRA 13:8)

(Flight training)

FADEEVA, N.P. [Fadeyeva, N.P.]; RAUTENSTEIN, I.I. [Rautenshteyn, Ya. I.]; [redacted] EL'PINER, I.E. [El'piner, I. Ye.]

Influence of ultrasonics on some actinophages and bacteriophages. Analele biol 14 no.1:39-45 Ja-Mr '60.

YAKOVLEV, A.A.; FADDEYEV, O.V.

Full-scale test of the icebreaker "I.Stalin" in 1959. Probl.Arkt.i Antarkt. no.5:81 '60. (MIR 14:4)

(Ice-breaking vessels)

BESSUDNOV, V.M., inzh.; FADDEYEV, O.V., inzh.

Requirements by classification societies of ship strength for sailing in ice. Sudostroenie 28 no.1:7-10 Ja '62. (MIRA 16:7)

(Hulls(Naval architecture))
(Sea ice)

SINITSYNA, G.S.; FADDEYEV, S.L.; SUKHODOLOV, G.M.

Electrolytic separation of micro quantities of uranium and plutonium. Radiokhimiia 1 no.3:295-299 '59. (MIRA 12:10)
(Uranium) (Plutonium)

FADEYEV, Sergey Pavlovich [deceased]; ZYBIN, V.P., doktor tekhn. nauk, retsenzent; POKROVSKIY, A.M., kand. tekhn. nauk, dots., nauchn. red.; KOLODYAZHNAYA, Zh.A., red.

[Design of machine parts; collection of problems] Raschety detalei mashin; sbornik zadach. Moskva, Vysshaia shkola, 1964. 180 p. (MIRA 18:3)

1. Zaveduyushchiy kafedroy "Detali mashin PTU" Vsesoyuznogo zaochnogo instituta tekstil'noy i legkoy promyshlennosti (for Zybin).

VORONOVSKIY, V.R.; FADDEYEV, V.P.

Determining the required frequency for transmitting information on the yield of oil wells. Neftepром. delo no.9:21-25 '65. (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut kompleksnoy avtomatizatsii neftyanoy i gazovoy promyshlennosti.

FADDEYEV, Ye.T.,

Fascinating trip. Nauka i zhizn' 23 no.10:37-38 O '56.(MLRA 9:11)
(Moscow--Atomic power--Exhibitions)

SOV/25-58-11-18/44

AUTHOR: Faddeyev, Ye.T.

TITLE: The Transformation of Nature (Preobrazovaniye prirody)

PERIODICAL: Nauka i zhizn', 1958, Nr 11, pp 41-48 and p 6 of centerfolds (USSR)

ABSTRACT: This is an anti-religious article dealing with the power and ability of men of changing nature by their own effort and will, independent of any religious beliefs or rules established by the Church. Academician A.Ye. Fersman, K.E. Tsiolkovskiy and V.L. Komarov are mentioned in this connection. There are 6 sketches, 3 pictures and 3 Soviet references.

Card 1/1

FADDEYEV, Ya.T., PLATONOV, G.V., doktor filosof.nauk, nauchnyy red.; SPIRIDONOVA, O.I., red.

[Science and religion; album] Nauka i religiia; al'bom - vystavka. Red.G.V.Platonov. Leningrad, Sovetskaia Rossiia, 1959. 41 l. [___Instructions for the use of the album "Science and religion."] ___ Metodicheskie ukazaniia k al'bomu "Nauka i religiia." 7 p. (MIRA 12:10)
(Science and religion)

BRYUKHANOV, Valentin Andreyevich [deceased]; FADDEYEV, Ye.T., otv.red.; VARVAROV, N.A., otv.red.; STEPANYAN, N.I., red.; ROZEN, E.A., tekhn.red.

[Great achievement of mankind; problem of interplanetary flights and atheism] Velikii shag chelovechestva; problema mezhplanetnykh poletov i ateizm. Moskva, Izd-vo "Sovetskaia Rossiia," 1959. 98 p. (MIRA 13:3)
(Interplanetary voyages) (Atheism)

S/025/61/000/006/005/007
D244/D305

27.0000 4112, 1121

AUTHOR: Faddeyev, Ye. T.

TITLE: What is this telepathy?

PERIODICAL: Nauka i zhizn', no. 6, 1961, 60-63

TEXT: The author discusses the question of telepathy with special reference to a recent conference on the philosophic aspects of the natural sciences attended by lecturers from Moscow higher educational institutes. The meeting held was under the auspices of the Kafedra dialekticheskogo i istoricheskogo materializma yestyestvennykh fakul'tetov MGU (Department of Dialectical and Historical Materialism in the Natural Sciences Faculty of Moscow State University. The main paper was read by Doctor of Philosophical Sciences A. G. Spirkin who initially cited some facts and experiments on thought-transmission mentioned in Nauka i zhizn', no. 11, 1960; Znaniye-sila, no. 12, 1960; Tekhnika-molodezhi, nos. 1-3, 1961. He then proposed a new concept of the materialistic effect of organisms on each other to explain the

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What is this telepathy?

nature of this phenomenon which must interest not only philosophers but also biologists, physiologists. doctors, cyberneticians and engineers. Many scientists favored electromagnetic vibrations as the means whereby thought-transmission takes place, although their views were discounted by V. Arkad'yev on the grounds of the feebleness of the biocurrent in the brain. Other speakers, however, suggested the existence of a special physical nerve-field in the brain. In the author's opinion, thought-transmission is accomplished by means of material agents or signals which transport information about specific thought-processes. These then induce in the brain of the recipient a similar condition to that existing in the brain of the transmitter at the moment of emission of the signals. Thus, in contrast to some views propounded in popular-science literature on telepathy (Tekhnika-molodezhi, no 1, 1961), the author maintains that only material processes, whose nature is not known at present, and not sound signals, serve as the means of stimulating mental patterns during telepathic communication.

What is this telepathy?

The author continues his argument by noting that the telepathic interrelationship of the subject and object is being studied by physiologists, psychologists and gnoseologists who all agree on the existence of the external world, the brain, and the intermediate organ - the human body. The direct influence of external factors (wounds, shock), however, are not considered to be completely characteristic of the system: object - subject. However, recent data indicate the presence of other phenomena - electromagnetic and magnetic radiation fields, which react on the brain while eluding the body. These little understood processes are of much interest in view of man's entry into space where radiation effects will be more diverse than those on Earth. According to some electrophysiologists and biophysicists, the brain is capable of generating radiation with a differing wavelength and may, therefore, be a source of electromagnetic fields. A new scheme has been proposed whereby one brain can react on another by means of a definite material factor - electromagnetic vibrations;

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What is this telepathy?

the telepathic link may possibly be through the reactions of the external medium on the organ of consciousness... The author, however, does not agree with such a concept; the telepathic link may well be a new material-agent, about which nothing is known at present. Of greater probability is the existence of special nerve fields - a hypothesis connected with the view that field forms of the movement of matter preceded the development of at any rate highly-organized life... These gravity, electron-positron, meson and nucleon fields appeared at a definite pre-biologic and pre-social stage of evolution; such forms are already known at atomic and stellar levels in the microcosm and macrocosm. No new field forms have since appeared, and it is suggested that the life cell (including the nerve cell) may become the source of a new type of field developed at a higher evolutionary stage and which may be the cause of brain-brain reactions. Another possibility is the perfection of this mental-reaction system in a pre-field state. There are 2 figures and 5 Soviet-bloc references.

Card 4/4

FADDEYEV Yu. I.

SOV/124-58-5-5389

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5, p 62 (USSR)

AUTHOR: Faddeyev, Yu. I.

TITLE: Using Energy Relationships to Investigate the Rolling of Ships Under Conditions in a Regular Seaway (Primeneniye energeticheskikh sootnosheniy k voprosu issledovaniya bortovoy kachki sudov na regulyarnom volnenii)

PERIODICAL: Tr. Leningr. korablestroit. in-ta, 1956, Nr 18, pp 159-174

ABSTRACT: The general problem of the side-to-side roll of a ship is examined under conditions of regular sea waviness. This is a further development of the subject of a previous paper by the author (Tr. Leningr. korablestroit. in-ta, 1955, Nr 15, pp 53-61; see also RZhMekh, 1956, Nr 11, abstract 7492). The equation for ship roll is solved by the energy method; taken into account are the various shapes of the static-stability curve, such as linear and nonlinear functions of the angle of heel, and various analytical relationships between the rotary damping moment and the angular rolling velocity. A graphic method is proposed for arriving at the nonlinear resonance amplitude. The author deems that his method yields more precise results

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Using Energy Relationships (cont.)

than do other methods; also, the laboriousness of the calculations is reduced. By way of numerical example, a determination is made of the resonance amplitude of a fishing trawler (displacement 936 tons) by means of both the linear and the nonlinear theories. The results obtained in the two cases are compared. Bibliography: 7 references.

V.B. Dragomiretskiy

1. Ship--Roll 2. Mathematics--Applications

Card 2/2

FADDEYEV, Yu. I. Cand Tech Sci -- (diss) "Study of Lateral Pitching of Ship Models on Calm and ~~Heaving~~ Turbulent Waters." Len, 1957. 23 pp 20 cm. (Len [illegible] Ship-Designing Inst), 140 copies (KL,26-57,109)

VOYTKUNSKIY, Ya.I., kand.tekhn.nauk; KATSMAN, F.M., inzh.; FADDEYEV, Yu.I., kand.tekhn.nauk; YAKONOVSKIY, S.V., inzh.

Towing resistance of lifeboats. Sudostroenie 24 no.12:15-20 D '58. (MIRA 12:2)

(Lifeboats) (Towing) (Ship resistance)

FADDEYEV, Yu.I.

Oscillation of bodies in a liquid. Trudy LKI no.28:73-80 '59.
(MIRA 15:5)

1. Kafedra gidromekhaniki Leningradskogo kroablestroitel'nogo instituta.
(Ships—Hydrodynamics)

11.3000 24.4350

S/044/61/000/003/005/014
C111/C333

AUTHOR: Faddeyev, Yu. I.

TITLE: The construction of the plane potential flow of an incompressible fluid with the method of conformal mappings for the representation of the solution in parameter form

PERIODICAL: Referativnyy zhurnal, Matematika, no. 3, 1961, 31, abstract 3B127. (Tr.Leningr. Korablestroit. in-ta, 1959, vyp 29,117-126)

TEXT: The author considers an instationary motion free of circulation of the contour. It is assumed that the function $z = f(\zeta)$, which maps the exterior of the contour to the exterior of the circle, is known. The author represents the boundary values of the components of the complex potential $w(\zeta)$, which correspond to the translation and to the rotary motion of the contour, as conjugate trigonometric series, uses the boundary conditions and expresses the coefficients of the series mentioned by the coefficients of the expansion of the mapping function. The adjoint masses are expressed by the same coefficients.
[Abstracter's note: Complete translation.]
Card 1/1

FADDEYEV, Yu.I.; LU CHEY, student

Geometric and hydrodynamic characteristics of one family of simplest symmetrical profiles. Trudy LKI no.34:81-92 '61. (MIRA 15:8)

1. Kafedra gidromekhaniki Leningradskogo korablestroitel'nogo instituta (for Faddeyev). 2. Korablestroitel'nyy fakul'tet Leningradskogo korablestroitel'nogo instituta (for Lu Chey).
(Blades)

FADDEYEV, Yu.I.

The motion of a flat deformable shape. Trudy LKI no.36:39-48 '62.
(MIRA 16:12)

1. Kafedra gidromekhaniki Leningradskogo korablestroitel'nogo instituta.

FADDEYEV, Yu.I.; YUY SYAN-SAN [Yü Hsiang-san]

Determining coefficients of resistance in the case of high damping. Trudy LKI no.38:151-155 '62. (MIRA 16:7)

1. Kafedra gidromekhaniki Leningradskogo korablestroitel'nogo instituta (for Faddeyev). 2. Kafedra teorii korablya Leningradskogo korablestroitel'nogo instituta (for Yuy Syan-San).
(Vibration (Marine engineering))

LUGOVSKIY, V.V., kand. tekhn. nauk; FADDEYEV, Yu.I., kand. tekhn. nauk

Calculating the rolling of ships using the nomograms of a series of model experiments. Sudostroenie 29 no.8:26-30 Ag '63. (MIRA 16:10)

(Ships--Hydrodynamics) (Ship models--Testing)

FADDEYEV, Yu. N.

KOVALEVSKIY, Georgiy Nikolayevich; FADDEYEV, Yu.N., red.; IVANOV, K.A., red.; TROFIMOV, A.V., tekhn.red.

[Ship theory] Teoriia korablia. Moskva, Izd-vo "Morskoi transport," 1956. 259 p. (MIRA 11:1)
(Hulls (Naval architecture))

FADDEYEVA, A.P.

6509 FADDEYEVA, A. P.

FADEYEVA, A. P. INZHENERNO-GEOLOGICHESKIYE IZYSKANIYA NA MORSKIKH POBEREZH'YAKH I V UST(YAKH REK. METOD. UKAZANIYA L.-M. GOS. 120 LIT PO STROITEL'STVU I ARKHITEKTURE, 1954 136 s. S ILL. 26 SM. (M-VO STROITEL'STVA SSSR. GLAVSTROIPROYekt. LENINGR. PROYEKTNYY IN-t) 1,000 EKZ 7 R. 90 K. -- AVT. RAZRABOTKI UKAZAN NA 4*Y S. - BIBLIOGR: s 133-134 (65 NAZV.)- (552596) P

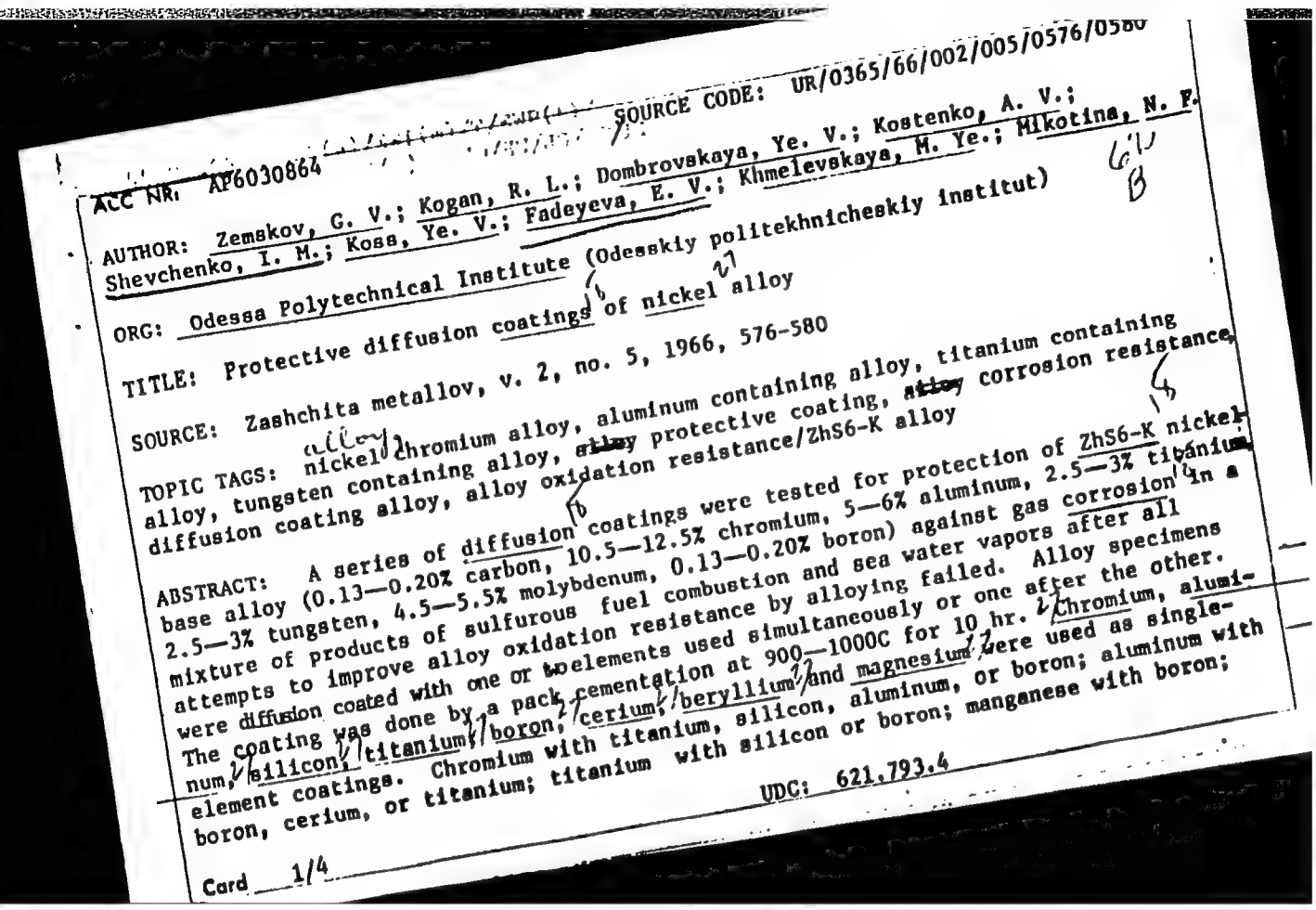
624.13:55 plus 016.3)

SO: KNIZHNAYA LETOPIS' NO. 6, 1955

LAVROVA, M.A., red.; FADDEYEVA, A.P., red.; ZHINGAREVA-
DOBROSEL'SKIY, A.T., red.; TOKAREVA, T.N., ved. red.

[Problems of the stratigraphy of Quaternary sediments in the northwestern area of the European part of the U.S.S.R.] Voprosy stratigrafii chetvertichnykh otlozhenii Severo-Zapada Evropeiskoi chasti SSSR; sbornik statei. Leningrad, Gostoptekhizdat, 1962. 198 p. (MIRA 18:5)

1. Nauchno-tekhnicheskoye gornoye obshchestvo, Moscow. Leningradskoye oblastnoye upravleniye.



ACC NR: AP6030864 SOURCE CODE: UR/0365/66/002/005/0576/0580

AUTHOR: Zemskov, G. V.; Kogan, R. L.; Dombrovskaya, Ye. V.; Kostenko, A. V.; Shevchenko, I. M.; Kosa, Ye. V.; Fadeyeva, E. V.; Khmelevskaya, M. Ye.; Nikotina, N. F.

ORG: Odessa Polytechnical Institute (Odesskiy politekhnicheskiy institut)

TITLE: Protective diffusion coatings of nickel alloy

SOURCE: Zashchita metallov, v. 2, no. 5, 1966, 576-580

TOPIC TAGS: nickel chromium alloy, aluminum containing alloy, titanium containing alloy, tungsten containing alloy, alloy protective coating, alloy corrosion resistance, diffusion coating alloy, alloy oxidation resistance/ZhS6-K alloy

ABSTRACT: A series of diffusion coatings were tested for protection of ZhS6-K nickel base alloy (0.13—0.20% carbon, 10.5—12.5% chromium, 5—6% aluminum, 2.5—3% titanium, 2.5—3% tungsten, 4.5—5.5% molybdenum, 0.13—0.20% boron) against gas corrosion in a mixture of products of sulfurous fuel combustion and sea water vapors after all attempts to improve alloy oxidation resistance by alloying failed. Alloy specimens were diffusion coated with one or two elements used simultaneously or one after the other. The coating was done by a pack cementation at 900—1000C for 10 hr. Chromium, aluminum, silicon, titanium, boron, cerium, beryllium, and magnesium were used as single-element coatings. Chromium with titanium, silicon, aluminum, or boron; aluminum with boron, cerium, or titanium; titanium with silicon or boron; manganese with boron;

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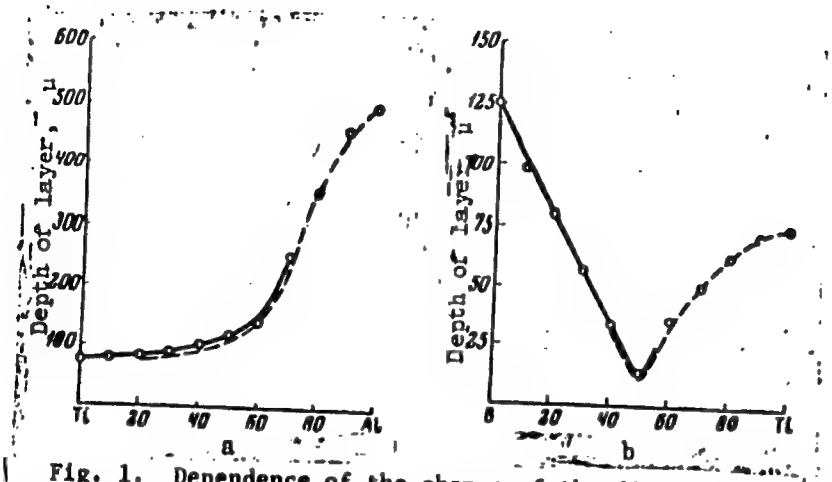

Fig. 1. Dependence of the change of the diffusion layer depth upon the content of elements in the mixture

a - Aluminum-silicon impregnation; b - boron-titanium impregnation.

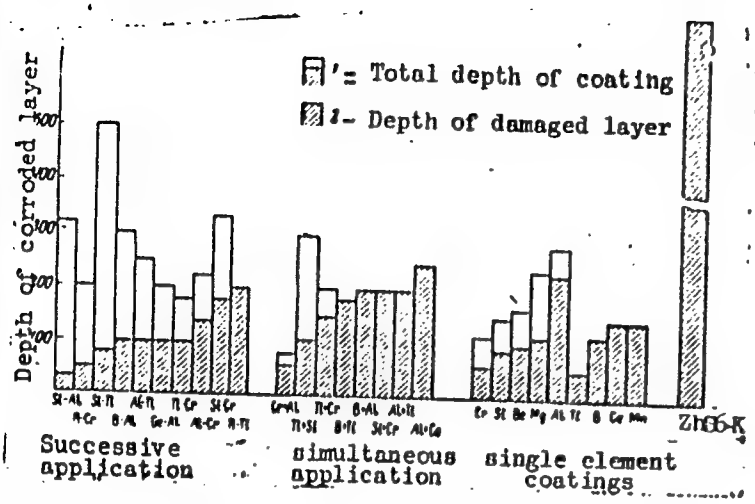

Fig. 2. Depth of corrosion in coated and uncoated ZhS6-K alloy.

cerium with boron; and silicon with aluminum were used for binary coatings. Corrosion tests were done in combustion products containing 0.74% and 0.11% sea water at 900C for 15 hr. It was found that all the coatings tested have a higher corrosion resistance than the uncoated alloy (see Fig. 1). Binary coatings protect the alloy more efficiently than single-element coatings, especially with the consecutive method of

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application. Coatings obtained by this method have a higher concentration of elements and a more uniform structure of the surface layer than the coatings applied by other methods. Orig. art. has: 5 figures. [ND]

SUB CODE: 11, 13/ SUBM DATE: 13Jul65/ ATD PRESS: 5077

Card 4/4

TROITSKAYA, Mariya Nikolayevna; FADDEYEVA, I.I., red.; LAZAREVA, L.V., tekhn. red.

[Textbook on laboratory work concerning soil mechanics] Posobie k laboratornym rabotam po mekhanike gruntov. Moskva, Izd-vo Mosk. univ., 1961. 303 p. (MIRA 15:1)
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VOSKRESENSKIY, Sergey Sergeyevich; FADDEYEVA, I.I., red.; GEORGIYEVA, G.I., tekhn.red.

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[Geology of the Caucasus.] Geologicheskoe stroenie Kavkaza. [Moskva] Izd-vo Mosk. univ., 1963. 355 p. (Ocherki regional'noi gelologii SSSR, no.8). (MIRA 16:9)

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A new middle Jurassic fern from the Orsk brown coal basin.
Paleont.zhur. no.3:127-130 '60. (MIRA 13:10)

1. Laboratoriya geologii uglya Akademii nauk SSSR.
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Jurassic megaspores from western Kazakhstan. Paleont. zhur. no.4: 125-128 '60. (MIRA 14:1)

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VOLKOV, V.N.; MARKOVICH, Ye.M.; FADDEYEVA, I.Z.; VOLKOVA, I.B.

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(Ural Mountains—Coal geology)

FADDEYEVA, Irina Zakharovna; LYUBER, A.A., kand. geol.-miner. nauk, otv. red.

[Palynological basis of the stratigraphic division of Lower Mesozoic coal-bearing sediments in the Or'-Ilek region] Palinologicheskoe obosnovanie stratigraficheskogo raschleneniia nizhnemezozoiskikh uglenosnykh otlozhenii Or'-Ilekskogo raiona. Moskva, Nauka, 1965. 116 p. (MIRA 18:8)

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(CHOLERA, ASIATIC--PREVENTION)

FADDEYEVA, M.D.

Spectral characteristics of the DNA - Acridine Orange complex.
Tsitologiia, 4:no.2:231 Mr-Ap '62. (MIRA 15:8)

1. Laboratoriya biokhimii kletki Instituta tsitologii AN SSSR, Leningrad.

(NUCLEIC ACIDS) (ACRIDINE ORANGE)

L 8944-66 EWT(1)/EWA(j)/EWA(b)-2 RO

ACC NR: AP5026554 SOURCE CODE: UR/0286/65/000/019/0111/0111

AUTHORS: Baskakov, Yu. A.; Faddeyeva, M. I.; Andreyeva, Ye. I.; Golyshin, N. M.; Novikova, R. G.

ORG: none

TITLE: Method for obtaining fungicidal derivatives of N-carboalcoxyarylhydroxyl amines. Class 45, No. 175347 [announced by All-Union Scientific Research Institute for Chemical Agents for Protection of Plants (Vsesoyuznyy nauchno-issledovatel'skiy institut khimicheskikh sredstv zashchity rasteniy)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 19, 1965, 111

TOPIC TAGS: fungicide, arylhydroxyl amine, plant disease control

ABSTRACT: This Author Certificate presents a method for obtaining fungicidal derivatives of N-carboalcoxyarylhydroxyl amines by reacting alkylchlorocarbonates with arylhydroxylamines. To increase the variety of fungicides, halogen arylhydroxylamines are used as arylhydroxylamines.

SUB CODE: 07/06 SUBM DATE: 22Jul64

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UDC: 632.951.2.547
547.555

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Effect of phenamine on of the higher nervous function in white rats. Zh. vysshei nerv. deiat., Pavlova 1 no. 2:165-186 Mar-Apr 1951. (CLML 22:5)

1. Department of the Pathophysiology and Therapy of Higher Nervous Activity, Institute of Higher Nervous Activity of the Academy of Sciences USSR.

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9. Monthly List of Russian Accessions, Library of Congress, April 1952 Unclassified.

FADDEYEVA, V. K.

Dissertation: "Experimental Investigations of the Effect of Phenamine on the Work of Higher Divisions of the Central Nervous System (on the Work of the Cerebrum)." Dr Med Sci, Inst of Higher Nervous Activity, Acad Sci USSR, Moscow, Oct-Dec 53.
Vestnik Akademii Nauk, Moscow, Jan 54)
(Source gives brief summary of work.)

SO: SUM 318, 23 Dec. 1954